REMARKS

Claims 1 through 53 are pending in this application.

Claims 13, 28, 44 and 52 are allowable if rewritten in independent form.

Claims 1-12, 14-27, 29-43, 45-51, and 53 are rejected.

Claims 11 and 26 are objected to.

In the following, the Examiner's comments are included in bold, indented type, followed

by the Applicants' remarks:

> **1.   Claim Objections**
>
> **Claims 11 and 26 are objected to under 37 CFR 1.75 as being a substantial duplicate of claims 8 and 23 respectfully.   When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).**

Applicants have amended claims 8 and 23 to clearly identify the difference in content

between those claims and claims 11 and 26, respectively.   In view of the amendments,

Applicants respectfully request that the objections to claims 11 and 26 be withdrawn.

> **3.   Claims 1-7, 12, 14, 15, 117-22, 27, 29, 30, 32-38, 43, 45, 46 and 48-51 are rejected under 35 U.S.C. 102(e) as being anticipated by Agarwal et al. (U.S. 6223182) (Agarwal).**
>
> **Regarding claims 1, 17, 32 and 48, Agarwal discloses a database system and a method for reorganizing rows from a partitioned database table, the partitioned database table including a plurality of populated partitions, comprising the steps of:**
>
> **a. organizing rows in each of the populated partitions in accordance with a first value associated with each row(col. 6, lines 12-19, Agarwal);**
>
> **b. creating a file context (intermediate table) for each partition of a subset of the populated partitions (col. 6, lines 4-11, Agarwal), each file context storing at least location data for a row in the partition and the first value associated with the row (col. 6, lines 12-19, Agarwal);**
>
> **c. merging rows from the subset of partitions into a single first-merge partition in order of the first value associated with each row (col. 9, lines 50-56, Agarwal);**
>
> **d. repeating steps b through c until the subsets have included all populated partitions (col. 9, lines 65 to col. 10, lines 7, Agarwal).**

> In addition, Agarwal discloses: one or more nodes (104, fig. 1 and corresponding text, Agarwal); a plurality of CPUs (106, 108, fig. 1 and corresponding text, Agarwal), each of the one or more nodes providing access to one or more CPUs (col. 4, lines 1-12, Agarwal); a plurality of virtual processes, each of one or more CPUs providing access to one or more virtual processes (col. 4, lines 27-42, Agarwal); each virtual process configured to manage data, including rows from the partitioned database table (col. 5, lines 60-col. 6, lines 4, Agarwal), stored in one of a plurality of data storage facilities (col. 5, lines 53-57, Agarwal), a partition merging component configured to reorganize rows from the portioned database table in each data storage facility (col. 12, lines 12-45, Agarwal).

Applicants respectfully disagree and submit that Agarwal does not disclose "creating a file context for each partition" as recited in claims 1, 17, and 48 or computer program instructions that cause a computer to "create a file context for each partition" as recited in claim 32. With respect to the file context element, the Examiner identifies the intermediate table discussed in col. 6, lines 4-19 of Agarwal. The disclosed intermediate table of Agarwal, however, is not created for each partition because (1) only a single intermediate table is disclosed as being created and (2) that table is created before the database even determines how to partition the table. *See* col. 6, lines 6-11. There are no partitions when the intermediate table is created, so it cannot be created "for each partition." Because Agarwal fails to disclose at least one element of each claim, there is no anticipation of claims 1, 17, 32, and 48, *see* MPEP 2131.

In addition, Agarwal does not disclose "repeating steps b through c" where step b includes "creating a file context for each partition" as recited in claims 1, 17, and 48 or computer program instructions that cause a computer to "repeat steps b through c" where in step b the instructions cause the computer to "create a file context for each partition" as recited in claim 32. With respect to the repetition of steps b and c, the Examiner identifies the loop discussed in col. 9, line 65 to col. 10, line 7 of Agarwal. Even if the creation of a single intermediate table disclosed in Agarwal did teach "creating a file context for each partition," which it does not as explained above, the loop identified by the Examiner does not include the step of creating the single intermediate table and would not disclose, therefore, the step of repeating steps b and c. Because Agarwal fails to disclose at least one element of each claim, there is no anticipation of claims 1, 17, 32, and 48, *see* MPEP 2131.

For these reasons, Applicants respectfully request that the rejections of claims 1, 17, 32 and 48 be withdrawn.

For these reasons, Applicants respectfully request that the rejections of claims 4, 35, and 49 be withdrawn.

> Regarding claims 5, 20 and 36, all the limitations of these claims have been noted in the rejection of claims 1, 17 and 32 above, respectively. In addition, Agarwal discloses: wherein the file contexts are stored in memory (col. 11, lines 2-18, Agarwal).

Applicants respectfully disagree and submit that, as discussed above, Agarwal fails to disclose at least one element of claims 1, 17, and 32. Claims 5, 20, and 36 depend from claims 1, 17, and 32, respectively, and therefore include the at least one undisclosed element. Because Agarwal fails to disclose at least one element of each claim, there is no anticipation of claims 5, 20, and 36, *see* MPEP 2131.

For these reasons, Applicants respectfully request that the rejections of claims 5, 20 and 36 be withdrawn.

> Regarding claims 6, 21 and 37, all the limitations of these claims have been noted in the rejection of claims 1, 17 and 32 above, respectively. In addition, Agarwal discloses: wherein the rows of the first-merge partitions are stored separately from the rows of the populated partitions of the partitioned database table (col. 11, lines 64 to col. 12, lines 2, Agarwal).

Applicants respectfully disagree and submit that, as discussed above, Agarwal fails to disclose at least one element of claims 1, 17, and 32. Claims 6, 21, and 37 depend from claims 1, 17, and 32, respectively, and therefore include the at least one undisclosed element. Because Agarwal fails to disclose at least one element of each claim, there is no anticipation of claims 6, 21, and 37, *see* MPEP 2131.

For these reasons, Applicants respectfully request that the rejections of claims 6, 21 and 37 be withdrawn.

> Regarding claims 2, 18 and 33, all the limitations of these claims have been noted in the rejection of claims, 1, 17 and 32 above, respectively. In addition, Agarwal discloses: further comprising the step of: e. comparing a specified grouping limit to the number of first-merge partitions and merging the first-merge partitions if the specified grouping limit is less than the number (col. 8, lines 37-53, Agarwal).

Applicants respectfully disagree and submit that, as discussed above, Agarwal fails to disclose at least one element of claims 1, 17, and 32. Claims 2, 18, and 33 depend from claims 1, 17, and 32, respectively, and therefore include the at least one undisclosed element. Because Agarwal fails to disclose at least one element of each claim, there is no anticipation of claims 2, 18, and 33, *see* MPEP 2131.

For these reasons, Applicants respectfully request that the rejections of claims 2, 18 and 33 be withdrawn.

> Regarding claims 3, 19 and 34, all the limitations of these claims have been noted in the rejection of claims 1, 17, and 32 above, respectively. In addition, Agarwal discloses: wherein the location data for a row in the location of a block of rows that includes the row (col. 6, lines 12-19, Agarwal).

Applicants respectfully disagree and submit that, as discussed above, Agarwal fails to disclose at least one element of claims 1, 17, and 32. Claims 3, 19, and 34 depend from claims 1, 17, and 32, respectively, and therefore include the at least one undisclosed element. Because Agarwal fails to disclose at least one element of each claim, there is no anticipation of claims 3, 19, and 34, *see* MPEP 2131.

For these reasons, Applicants respectfully request that the rejections of claims 3, 19 and 34 be withdrawn.

> Regarding claims 4, 35 and 49, all the limitations of these claims have been noted in the rejection of claims 1, 33 and 48 above, respectively. In addition Agarwal discloses: wherein steps a through c are performed on rows in a single data-storage facility (col. 5, lines 53-57, Agarwal).

Applicants respectfully disagree and submit that, as discussed above, Agarwal fails to disclose at least one element of claims 1, 32, and 48. Claims 4, 35, and 49 depend, either directly or indirectly, from claims 1, 32, and 48, respectively, and therefore include the at least one undisclosed element. Because Agarwal fails to disclose at least one element of each claim, there is no anticipation of claims 4, 35, and 49, *see* MPEP 2131.

> Regarding claims 7, 22, 38 and 50, all the limitations of these claims have been noted in the rejection of claims 1, 17, 32 and 48 above, respectively. In addition, Agarwal discloses: further comprising the steps of:
>
> a'. determining whether rows from a partitioned primary index table are being spooled (col. 11, lines 1-38, Agarwal);
>
> a". determining whether a subsequent operation requires the spooled rows to be ordered in accordance with the first value associated with each row (col. 11, lines 18-38, Agarwal); and
>
> a"'. performing steps b through d only if both determinations, a' and a", are true (col. 13, lines 21-30, Agarwal).

Applicants respectfully disagree and submit that, as discussed above, Agarwal fails to disclose at least one element of claims 1, 17, 32, and 48. Claims 7, 22, 38, and 50 depend from claims 1, 17, 32, and 48, respectively, and therefore include the at least one undisclosed element. Because Agarwal fails to disclose at least one element of each claim, there is no anticipation of claims 7, 22, 38, and 50, *see* MPEP 2131.

For these reasons, Applicants respectfully request that the rejections of claims 7, 22, 38 and 50 be withdrawn.

> Regarding claims 12, 27, 43 and 51, all the limitations of these claims have been noted in the rejection of claims 1, 17, 32 and 48 above, respectively. In addition, Agarwal discloses: wherein the subsets of partitions contain no more than a specified number of populated partitions and the specified number is determined by memory usage (col. 8, lines 37-53, Agarwal).

Applicants respectfully disagree and submit that, as discussed above, Agarwal fails to disclose at least one element of claims 1, 17, 32, and 48. Claims 12, 27, 43, and 51 depend from claims 1, 17, 32, and 48, respectively, and therefore include the at least one undisclosed element. Because Agarwal fails to disclose at least one element of each claim, there is no anticipation of claims 12, 27, 43, and 51, *see* MPEP 2131.

For these reasons, Applicants respectfully request that the rejections of claims 12, 27, 43 and 51 be withdrawn.

> Regarding claims 14, 29 and 45, all the limitations of these claims have been noted in the rejection of claims 1, 32 and 48 above, respectively. In addition, Agarwal discloses: wherein the reorganization is conducted in response to a query having conditions and the step of merging rows includes eliminating rows that do not satisfy the query conditions (col. 13, lines 21-30, Agarwal).

Applicants respectfully disagree and submit that, as discussed above, Agarwal fails to disclose at least one element of claims 1, 32, and 48. Claims 14, 29, and 45 depend from claims 1, 32, and 48, respectively, and therefore include the at least one undisclosed element. Because Agarwal fails to disclose at least one element of each claim, there is no anticipation of claims 14, 29, and 45, *see* MPEP 2131.

For these reasons, Applicants respectfully request that the rejections of claims 14, 29, and 45 be withdrawn.

> Regarding claims 15, 30 and 46, all the limitations of these claims have been noted in the rejection of claims 1, 32 and 48 above, respectively. In addition, Agarwal discloses: wherein the first subset of the populated partitions includes all the populated partitions and steps b and c are not repeated (col. 9, lines 65 to col. 10, lines 7, Agarwal).

Applicants respectfully disagree and submit that, as discussed above, Agarwal fails to disclose at least one element of claims 1, 32, and 48. Claims 15, 30, and 46 depend from claims 1, 32, and 48, respectively, and therefore include the at least one undisclosed element. Because Agarwal fails to disclose at least one element of each claim, there is no anticipation of claims 15, 30, and 46, *see* MPEP 2131.

For these reasons, Applicants respectfully request that the rejections of claims 15, 30 and 46 be withdrawn.

> 5.   Claims 8-11, 16, 23-26, 31, 39-42, 47 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agarwal et al. (U.S. 6223182) (Agarwal) in view of Goetz Graefe, "Query Evolution techniques for large databases", ACM computing surveys, Vol. 25, No. 2, June 1993.

> Regarding claims 8, 11, 23, 26, 39 and 42, all the limitations of these claims have been noted in the rejection of claims 1, 17, 32 and 48 above, respectively. In addition, Agarwal discloses: further comprising the steps of:

> e. creating a file context for each first-merge partition of a subset of the first-merge partitions, each file context storing at least location data for a row in the partition and the first value associated with the row (col. 6, lines 12-19, Agarwal);

f. merging rows from the subset of first-merge partitions into a spool-merge partition in order of the first value associated with each row (col. 9, lines 50-56, Agarwal);

g. repeating steps a and f until the subsets have included all first-merge partitions (col. 9, lines 65 to col. 10, lines 7, Agarwal);

However, Agarwal didn't disclose: the steps of h, i and j. On the other hand, Graefe discloses: h. bypassing steps i through k if the rows from the populated partitions are contained in one partition in order of the first value associated with each row (fig. 6 and page 88, Graefe);

i. creating a file context for each spool-merge partition of a subset of the spool-merge partitions, each file context storing at least location data for a row in the partition and the first value associated with the row (fig. 6 and page 88, Graefe);

j. merging rows from the subset of spool-merge partitions into a new spool-merge partition in order of the first value associated with each row;

k. repeating steps i and j until the rows from the populated partitions are contained in one partition in order of the first value associated with each row (fig. 6 and page 88, Graefe). Thus, at the time invention was made, it would have been obvious to a person of ordinary skill in the art to include the steps for creating a file context for each spool-merge partition of a subset of the spool-merge partitions then merging rows from the subset of spool-merge partitions into a new spool-merge partition in order and then repeat these steps in the system of Agarwal as taught by Graefe. The motivation being to enable the system operates the merge-join for the input as first merge step only part of the all table are combined and runs the result then merged with other cost for the just the right number of runs after the end of the input file has been reached and to always merge the smallest runs available for merging (page 88, Graefe).

Applicants respectfully disagree and submit that, as discussed above, Agarwal fails to disclose at least one element of claims 1, 17, and 32. Claims 8, 11, 23, 26, 39, and 42 each depend from one of claims 1, 17, and 32, and therefore include the at least one undisclosed element. Because Agarwal fails to disclose at least one element of each claim and Graefe does not disclose the at least one element of claims 1, 17, and 32 that is not disclosed by Agarwal, the combination asserted by the Examiner lacks at least one element and there is no prima facie case of obviousness, *see* MPEP 2143.

For these reasons, Applicants respectfully request that the rejections of claims 8, 11, 23, 26, 39 and 42 be withdrawn.

Regarding claims 9, 24 and 40, all the limitations of these claims have been noted in the rejection of claims 8, 23 and 39 above, respectively. In addition, Agarwal/Graefe discloses: wherein first-merge partitions and

> spool-merge partitions are contained in different subtables of a spool (col.
> 11, lines 1-18, Agarwal).

Applicants respectfully disagree and submit that, as discussed above, Agarwal fails to disclose at least one element of claims 1 and 17. Claims 9, 24, and 30 each depend from one of claims 1 and 17, and therefore include the at least one undisclosed element. Because Agarwal fails to disclose at least one element of each claim and Graefe does not disclose the at least one element of claims 1 and 17 that is not disclosed by Agarwal, the combination asserted by the Examiner lacks at least one element and there is no prima facie case of obviousness, *see* MPEP 2143.

For these reasons, Applicants respectfully request that the rejections of claims 9, 24 and 30 be withdrawn.

> **Regarding claims 10, 25 and 41, all the limitations of these claims have been
> noted in the rejection of claims 8, 23 and 39 above, respectively. In
> addition, Agarwal/Graefe discloses: wherein step j includes merging rows
> from the subset of spool-merge partitions, each located in a first subtable of
> a spool, into a new spool-merge partition, located in a second subtable of
> the spool (col 11, lines 18-37, Agarwal).**

Applicants respectfully disagree and submit that, as discussed above, Agarwal fails to disclose at least one element of claims 1, 17, and 32. Claims 10, 25, and 41 each depend, directly or indirectly, from claims 1, 17, and 32, respectively, and therefore include the at least one undisclosed element. Because Agarwal fails to disclose at least one element of each claim and Graefe does not disclose the at least one element of claims 1, 17, and 32 that is not disclosed by Agarwal, the combination asserted by the Examiner lacks at least one element and there is no prima facie case of obviousness, *see* MPEP 2143.

For these reasons, Applicants respectfully request that the rejections of claims 10, 25 and 41 be withdrawn.

> **Regarding claims 16, 31, 47 and 53, all the limitations of these claims have
> been noted in the rejection of claims 1, 17, 32 and 48 above, respectively. In
> addition, Agarwal/Graefe discloses: wherein the first value is the result of a
> hash function applied to one or more values in one or more columns of the
> associated row (page 90, left col., 2nd paragraph, Graefe).**

Applicants respectfully disagree and submit that, as discussed above, Agarwal fails to disclose at least one element of claims 1, 17, 32, and 48. Claims 16, 31, 47, and 53 each depend, directly or indirectly, from claims 1, 17, 32, and 48, respectively, and therefore include the at

least one undisclosed element. Because Agarwal fails to disclose at least one element of each claim and Graefe does not disclose the at least one element of claims 1, 17, 32, and 48 that is not disclosed by Agarwal, the combination asserted by the Examiner lacks at least one element and there is no prima facie case of obviousness, *see* MPEP 2143.

For these reasons, Applicants respectfully request that the rejections of claims 16, 31, 47 and 53 be withdrawn.

All amendments are made in a good faith effort to advance the prosecution on the merits.

Applicants reserve the right to subsequently take up prosecution on the claims as originally filed in this or appropriate continuation, continuation-in-part and/or divisional applications.

Applicants respectfully request that the amendments submitted herein be entered, and further requests reconsideration in light of the amendments and remarks contained herein.

Applicants respectfully request withdrawal of all objections and rejections, and further respectfully request that there be an early notice of allowance.

SUMMARY

Applicant contends that the claims are in condition for allowance, which action is requested. Applicants submit herewith a Petition for One Month Extension of Time (PTO/SB/22) and request that the one-month petition fee amount of $110.00 be debited from deposit account number 50-1673. Should any additional fees be required, Applicant requests that the fees be debited from deposit account number 50-1673.

Respectfully submitted,
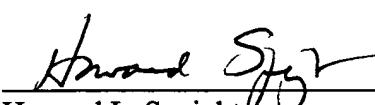
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